

## CLAIMS

We claim:

1. A cDNA encoding a constitutively active, non-endogenous version, of a human 5HT<sub>2C</sub> serotonin receptor comprising SEQ. ID NO. 28.
2. A constitutively active non-endogenous human 5HT<sub>2C</sub> serotonin receptor encoded by the cDNA of SEQ ID NO. 28 comprising SEQ ID NO. 29.
3. A cDNA encoding a constitutively active, non-endogenous version, of a human 5HT<sub>2A</sub> serotonin receptor comprising SEQ. ID NO. 30.
4. A constitutively active non-endogenous human 5HT<sub>2A</sub> serotonin receptor encoded by the cDNA of SEQ ID NO. 30 comprising SEQ ID NO. 31.
5. A cDNA encoding a constitutively active, non-endogenous version, of a human 5HT<sub>2A</sub> serotonin receptor comprising SEQ. ID NO. 32.
6. A constitutively active non-endogenous human 5HT<sub>2A</sub> serotonin receptor encoded by the cDNA of SEQ ID NO. 32 comprising SEQ ID NO. 33.
7. A method for identifying whether a candidate compound is an inverse agonist to a non-endogenous human 5HT<sub>2</sub> serotonin receptor comprising the steps of:
  - a. contacting the candidate compound with a non-endogenous human 5HT<sub>2</sub> serotonin receptor ; and
  - b. determining, by measurement of a second messenger response whether said compound is an inverse agonist.
8. The method of claim 7 in which the non-endogenous human 5HT<sub>2</sub> serotonin receptor comprises SEQ ID NO. 29.
9. The method of claim 7 in which the non-endogenous human 5HT<sub>2</sub> serotonin receptor comprises SEQ ID NO. 31.
10. The method of claim 7 in which the non-endogenous human 5HT<sub>2</sub> serotonin receptor comprises SEQ ID NO. 33.
11. An inverse agonist identified by the method of claim 7.
12. A reagent for screening compounds to determine whether the compounds are inverse agonists at human 5HT<sub>2</sub> serotonin receptors comprising a membrane fraction from mammalian cells transfected with and expressing a cDNA encoding for a constitutively active, non-endogenous version, of a human 5HT<sub>2</sub> serotonin receptor

in which the constitutively active non-endogenous human 5HT<sub>2</sub> receptor is expressed on the cell surface.

13. A reagent for screening compounds to determine whether the compounds are inverse agonists at human 5HT<sub>2</sub> serotonin receptors comprising mammalian cells which produce a second messenger response, transfected with and expressing a cDNA encoding for a constitutively active, non-endogenous version, of a human 5HT<sub>2</sub> serotonin receptor in which the constitutively active non-endogenous human 5HT<sub>2</sub> receptor is expressed on the cell surface.